

In the Claims

Please replace all prior versions, and listings, of claims in the application with the following list of claims:

- 1-8. (Canceled)
9. (Previously presented) A method of producing a merozoite surface protein 1 (MSP-1) in the milk of a non-human transgenic mammal, comprising:
 - providing a non-human transgenic mammal whose genome comprises a modified SEQ ID NO: 2 encoding wild-type MSP-1 operably linked to a mammary gland promoter,
 - wherein the modification reduces the AT content of SEQ ID NO: 2 by 50% or less by replacement of protozoan codons with codons preferred by mammalian cells,
 - wherein the replacement codons encode the same amino acid as the replaced codon; and
 - allowing the transgenic mammal to express said modified SEQ ID NO: 2, thereby to produce MSP-1 in its milk.
- 10-12. (Canceled)
13. (Previously presented) The method of claim 9, wherein the promoter is a β -casein promoter.
14. (Previously presented) The method of claim 9, wherein the modified SEQ ID NO: 2 encodes an MSP-1 comprising an amino acid sequence that lacks at least one glycosylation site.
15. (Previously presented) The method of claim 14, wherein the modified SEQ ID NO: 2 encodes an MSP-1 comprising an amino acid sequence that lacks all glycosylation sites.

16. (Canceled)
17. (Currently amended) The method of claim 9, wherein the modified SEQ ID NO: 2 encodes an MSP-1 comprising an amino acid substitution at position 182 ~~181~~.
18. (Currently amended) The method of claim 9, wherein the modified SEQ ID NO: 2 encodes an MSP-1 comprising an amino acid substitution at position 263 ~~262~~.
19. (Currently amended) The method of claim 9, wherein the modified SEQ ID NO: 2 encodes an MSP-1 comprising amino acid substitutions at positions 182 ~~181~~ and 263 ~~262~~.
20. (Previously presented) A method of producing a merozoite surface protein 1 (MSP-1) sequence in the milk of a non-human transgenic mammal, comprising:
 providing a non-human transgenic mammal whose genome comprises a modified SEQ ID NO: 2 encoding a wild-type MSP-1 operably linked to a mammary gland promoter,
 wherein the modification eliminates all the mRNA instability motifs in said SEQ ID NO: 2 by replacement of protozoan codons with codons preferred by mammalian cells, and
 wherein the replacement codons encode the same amino acid as the replaced codon; and,
 allowing the transgenic mammal to express said modified SEQ ID NO: 2, to thereby produce MSP-1 in its milk.
- 21-23. (Canceled)
24. (Previously presented) The method of claim 20, wherein the promoter is a β -casein promoter.

25. (Previously presented) The method of claim 20, wherein the modified SEQ ID NO: 2 encodes an MSP-1 comprising an amino acid sequence that lacks at least one glycosylation site.
26. (Previously presented) The method of claim 25, wherein the modified SEQ ID NO: 2 encodes an MSP-1 comprising an amino acid sequence that lacks all glycosylation sites.
27. (Canceled)
28. (Currently amended) The method of claim 20, wherein the modified SEQ ID NO: 2 encodes an MSP-1 comprising an amino acid substitution at position 182 ~~181~~.
29. (Currently amended) The method of claim 20, wherein the modified SEQ ID NO: 2 encodes an MSP-1 comprising an amino acid substitution at position 263 ~~262~~.
30. (Previously presented) A method for producing a merozoite surface protein 1 (MSP-1) sequence in the milk of a non-human transgenic mammal, comprising:
providing a non-human transgenic mammal whose genome comprises a modified SEQ ID NO: 2 encoding a wild-type MSP-1 operably linked to a mammary gland promoter,
wherein the nucleic acid has been modified by
a) elimination of mRNA instability motifs by the replacement of protozoan codons in SEQ ID NO: 2 with codons preferred by mammalian cells; and
b) reduction of AT content by 50% or less by the replacement of one or more AT-containing protozoan codons of SEQ ID NO: 2 with codons preferred by mammalian cells,
wherein the replacement codons encode the same amino acid as the replaced codon; and
allowing the transgenic mammal to express said modified SEQ ID NO: 2, to thereby produce MSP-1 in its milk.

31-34. (Canceled)

35. (Previously presented) The method of claim 30, wherein the modified SEQ ID NO: 2 is expressed in milk at a level which is at least 25% more than the wild-type sequence is expressed under the same conditions.

36. (Previously presented) The method of claim 30, wherein the modified SEQ ID NO: 2 is expressed in milk at a level which is at least 50% more than the wild-type nucleic acid sequence is expressed under the same conditions.

37. (Previously presented) The method of claim 30, wherein the modified SEQ ID NO: 2 is expressed in milk at a level which is at least 100% more than the wild-type nucleic acid sequence is expressed under the same conditions.

38. (Previously presented) The method of claim 30, wherein all protozoan codons are replaced with codons preferred by mammalian cells.

39. (Canceled)

40. (Currently amended) The method of claim 30, wherein the modified SEQ ID NO: 2 encodes an MSP-1 comprising an amino acid substitution at position 182 ~~181~~.

41. (Currently amended) The method of claim 30, wherein the modified SEQ ID NO: 2 encodes an MSP-1 comprising an amino acid substitution at position 263 ~~262~~.

42. (Previously presented) A transgenic non-human mammal whose genome comprises a modified SEQ ID NO: 2 encoding a wild-type MSP-1 operably linked to a mammary gland specific promoter, wherein the modification eliminates all the

mRNA instability motifs of said SEQ ID NO: 2 by replacement of one or more protozoan codons with codons preferred by mammalian cells and the modification reduces the AT content of said SEQ ID NO: 2 by 50% or less by replacement of protozoan codons with codons preferred by mammalian cells, wherein the replacement codons encode the same amino acid as the replaced codon and wherein the transgenic mammal expresses said modified SEQ ID NO: 2, thereby to produce MSP-1 in its milk.

43-46. (Canceled)

47. (Previously presented) The mammal of claim 42, wherein the modified SEQ ID NO: 2 is expressed in milk at a level which is at least 25% more than the wild-type sequence is expressed under the same conditions.

48. (Previously presented) The mammal of claim 42, wherein the modified SEQ ID NO: 2 is expressed in milk at a level which is at least 50% more than the wild-type nucleic acid sequence is expressed under the same conditions.

49. (Previously presented) The mammal of claim 42, wherein the modified SEQ ID NO: 2 is expressed in milk at a level which is at least 100% more than the wild-type nucleic acid sequence is expressed under the same conditions.

50. (Previously presented) The mammal of claim 42, wherein all protozoan codons are replaced with codons preferred by mammalian cells.

51. (Canceled)

52. (Currently amended) The mammal of claim 42, wherein the modified SEQ ID NO: 2 encodes an MSP-1 comprising an amino acid substitution at position 182 ~~181~~.

53. (Currently amended) The mammal of claim 42, wherein the modified SEQ ID NO: 2 encodes an MSP-1 comprising an amino acid substitution at position 263 ~~262~~.

54. (Previously presented) The mammal of claim 42, wherein the promoter is a β -casein promoter.

55. (Previously presented) A non-human transgenic mammal whose genome comprises a modified SEQ ID NO: 2 encoding wild-type merozoite surface protein (MSP-1) operably linked to a mammary gland promoter,

wherein the modification reduces the AT content of SEQ ID NO: 2 by 50% or less by replacement of protozoan codons with codons preferred by mammalian cells,

wherein the replacement codons encode the same amino acid as the replaced codon, and

wherein the transgenic mammal expresses said modified SEQ ID NO: 2, thereby to produce MSP-1 in its milk.

56-58. (Canceled)

59. (Previously presented) The mammal of claim 55, wherein the promoter is a β -casein promoter.

60. (Previously presented) The mammal of claim 55, wherein the modified SEQ ID NO: 2 encodes an MSP-1 comprising an amino acid sequence that lacks at least one glycosylation site.

61. (Previously presented) The mammal of claim 60, wherein the modified SEQ ID NO: 2 encodes an MSP-1 comprising an amino acid sequence that lacks all glycosylation sites.

62. (Canceled)

63. (Currently amended) The mammal of claim 55, wherein the modified SEQ ID NO: 2 encodes an MSP-1 comprising an amino acid substitution at position 182 ~~181~~.
64. (Currently amended) The mammal of claim 55, wherein the modified SEQ ID NO: 2 encodes an MSP-1 comprising an amino acid substitution at position 263 ~~262~~.
65. (Currently amended) The mammal of claim 55, wherein the modified SEQ ID NO: 2 encodes an MSP-1 comprising amino acid substitutions at positions 182 ~~181~~ and 263 ~~262~~.
66. (Previously presented) A non-human transgenic mammal whose genome comprises a modified SEQ ID NO: 2 encoding a wild-type MSP-1 operably linked to a mammary gland promoter,
wherein the modification eliminates all the mRNA instability motifs in said SEQ ID NO: 2 by replacement of protozoan codons with codons preferred by mammalian cells,
wherein the replacement codons encode the same amino acid as the replaced codon, and
wherein the transgenic mammal expresses said modified SEQ ID NO: 2, to thereby produce MSP-1 in its milk.
- 67-69. (Canceled)
70. (Previously presented) The mammal of claim 66, wherein the promoter is a β -casein promoter.
71. (Previously presented) The mammal of claim 66, wherein the modified SEQ ID NO: 2 encodes an MSP-1 comprising an amino acid sequence that lacks at least one glycosylation site.

72. (Previously presented) The mammal of claim 71, wherein the modified SEQ ID NO: 2 encodes an MSP-1 comprising an amino acid sequence that lacks all glycosylation sites.
73. (Canceled)
74. (Currently amended) The mammal of claim 66, wherein the modified SEQ ID NO: 2 encodes an MSP-1 comprising an amino acid substitution at position 182 ~~181~~.
75. (Currently amended) The mammal of claim 66, wherein the modified SEQ ID NO: 2 encodes an MSP-1 comprising an amino acid substitution at position 263 ~~262~~.
76. (Currently amended) The mammal of claim 66, wherein the modified SEQ ID NO: 2 encodes an MSP-1 comprising amino acid substitutions at positions 182 ~~181~~ and 263 ~~262~~.
- 77-84. (Canceled)
85. (Previously presented) The method of claim 30, wherein the promoter is a β -casein promoter.